APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,422	02/12/2002	Min-Goo Kim	678-806(P10161)	6996

			EXAMINER
28249	7590	09/07/2004	TORRES, JOSEPH D

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ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/074,422	KIM ET AL.
	Examiner	**Art Unit**	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>1</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 May 2003</u>.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-21</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☐ Claim(s) _____ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☒ Claim(s) <u>1-21</u> are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4)☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. <u>8/28/04</u> .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I.   Claims 1-8, drawn to A QCTC (Quasi-Complementary Turbo Code) generating apparatus comprising a turbo encoder generating an information symbol sequence and a plurality of parity symbol sequences according to a given code rate by encoding the information symbol sequence and a QCTC generator for generating a sub-code of a QCTC by repeating the serially concatenated symbol sequence and selecting a predetermined number of symbols from the repeated symbol sequence according to code rate and selection information, classified in class 714, subclass 774.

II.   Claims 9-13 and 17-21, drawn to A QCTC (Quasi-Complementary Turbo Code) generating apparatus comprising a symbol concatenator for serially concatenating the interleaved information symbol sequence and the new parity symbol sequence and a QCTC generator for generating a sub-code of a QCTC with a given code rate by recursively selecting a predetermined number of symbols from the serially concatenated symbol sequence at a given starting position according to the code rate, classified in class 714, subclass 774.

III.   Claims 14-16, drawn to A QCTC (Quasi-Complementary Turbo Code)

generating apparatus comprising a channel interleaver for individually

interleaving the information symbol sequence and the parity symbol

sequences, generating new parity symbol sequences by multiplexing the

symbols of parity symbol sequences with the same priority levels, and

serially concatenating the information symbol sequence and the new

parity symbol sequences, classified in class 714, subclass 774.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as subcombinations disclosed as usable

together in a single combination. The subcombinations are distinct from each other if

they are shown to be separately usable. In the instant case, invention Group I has

separate utility such as for generating an information symbol sequence and a plurality of

parity symbol sequences according to a given code rate by encoding the information

symbol sequence and generating a sub-code of a QCTC by repeating the serially

concatenated symbol sequence and selecting a predetermined number of symbols from

the repeated symbol sequence according to code rate and selection information. In the

instant case, invention Group II has separate utility such as for for serially concatenating

the interleaved information symbol sequence and the new parity symbol sequence

generating a sub-code of a QCTC with a given code rate by recursively selecting a

predetermined number of symbols from the serially concatenated symbol sequence at a

given starting position according to the code rate. See MPEP § 806.05(d).

Inventions Group I and Group III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention Group I has separate utility such as for generating an information symbol sequence and a plurality of parity symbol sequences according to a given code rate by encoding the information symbol sequence and generating a sub-code of a QCTC by repeating the serially concatenated symbol sequence and selecting a predetermined number of symbols from the repeated symbol sequence according to code rate and selection information. In the instant case, invention Group III has separate utility such as for individually interleaving the information symbol sequence and the parity symbol sequences, generating new parity symbol sequences by multiplexing the symbols of parity symbol sequences with the same priority levels, and serially concatenating the information symbol sequence and the new parity symbol sequences. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search

required for Group I is not required for Group III, restriction for examination purposes as

indicated is proper.

Because these inventions are distinct for the reasons given above and the search

required for Group III is not required for Group I, restriction for examination purposes as

indicated is proper.

Because these inventions are distinct for the reasons given above and the search

required for Group II is not required for Group III, restriction for examination purposes as

indicated is proper.

Because these inventions are distinct for the reasons given above and the search

required for Group III is not required for Group II, restriction for examination purposes as

indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a

separate status in the art because of their recognized divergent subject matter,

restriction for examination purposes as indicated is proper.

A telephone call was made to Paul Farrell on 17 August 2004 to request an oral election

to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
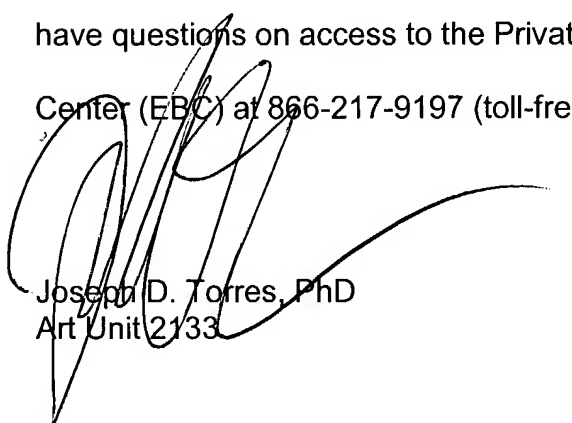
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Joseph D. Torres, PhD
Art Unit 2133